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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,049	04/21/2005	Yoshihiro Ohtani	1248-0778PUS1	6180

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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER	
CEHIC, KENAN	

ART UNIT	PAPER NUMBER
2616	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/532,049	OHTANI, YOSHIHIRO	
	Examiner	Art Unit	
	KENAN CEHIC	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 March 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29-63* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *30-32* is/are allowed.

6)☐ Claim(s) *29 and 33-63* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Objections

1. Claim 37 is objected to because of the following informalities:

For claim 37, for better understand/less ambiguous claims language it is suggested to enclose "T max" with parentheses or commas. Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claim 63 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The second paragraph on page 71 of the instant application defines a recording medium to be medium carrying a program over a network, which is a signal. Thus a it is not a a process, machine, manufacture, or composition of matter, or any new and useful improvement. It is suggested to applicant to delete the second paragraph on page 71 to overcome this rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 29, 33-63 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For claim 29, 33, 46, 60, and 61, the definition of C is unclear. The definition given "C is an average ratio of the sum of the transmission right granted time periods allocated" is indefinite and unclear. The word ratio implies a proportionality between two variables (for example "ratio of A to B"), however in the given definition only one variable ("sum") is given.

For claim 49, the variable "PLR" is not defined.

Dependent claims are rejected since they depend on a rejected claims.

Allowable Subject Matter

1. Claims 30-32 are allowed.

For claim 30, the prior art fails to disclose causing the central control station to carry out the scheduling, by using parameters C and Tbound, so that a sum of transmission right granted time
periods actually granted in a time period {tl, t2} is always equal to or more than C.{(t2 - T bound) - tl } where tl and t2 are arbitrary time points (tl t2),
C is an average rate of change of the sum of the transmission right granted time periods allocated, to the communication station that is to transmit the data, by the central control station according to a reference transmission right allocation, and T delay is a maximum tolerable delay time of the data to be transmitted by the communication station that is to transmit the data, C and T bound satisfying following formulae:

Formula 1 0<T bound< T delay

Formula 2:0< C<1

The closest prior art, Pavon et al (US 2006/0052088) teaches a similar expression of C however the it is not used in the same context nor in the same formula. Additionally the bounds of the parameters are not set as claimed.

For claim 31, prior art fails to disclose causing the central control station to carry out the scheduling, by using a parameter Tboud and based on information concerning a traffic property of the data or a polling request, so that a sum of transmission right granted time periods actually granted in a time period {tl, t2} is a value equal to or more than a value of a time period necessary for transmitting MSDUs arriving in a time period (tl, t2- T bound), where tl and t2 are arbitrary time points (tl t2), and T delay is a tolerable maximum delay time (Delay bound) of the data to be transmitted by said one communication station, T bound satisfying a following formula:

Formula 1: 0 <T bound< T delay

The closest prior art, Pavon et al (US 2006/0052088) teaches the delay bound and a transmitting periods (TXOP), however it fails to disclose that sum of transmission right granted time periods actually granted in a time period {tl, t2} is a value equal to or more than a value of a time period necessary for transmitting MSDUs arriving in a time period (tl, t2- T bound).

For claim 31, prior art fails to disclose causing the central control station to carry out the scheduling, by using parameters C, TXOP1 bound, T1 bound, TXOP2 bound, and T2 bound, so that a sum of transmission right granted time periods actually granted in a time

period {tO, tO + t} is always equal to or more than C't - TXOP1 bound and equal to or less than C.t + TXOP2 bound where tO is an arbitrary time point, C is an average ratio of the sum of the transmission right granted time periods allocated, to the communication station that is to transmit the data, by the central control station according to a reference transmission right allocation, and T delay is a maximum tolerable delay time of the data to be transmitted by the communication station that is to transmit the data, C, TXOP1 bound, T1 bound, TXOP2 bound, and T2 bound satisfying the following formulas:

Formula 4: 0< T1 bound < T delay, 0<T2 bound

Formula 5: 0<C<1

Formula 6: TXOP1 bound = C*T1 bound

TXOP2 bound = C*T2 bound

The closest prior art, Pavon et al (US 2006/0052088) teaches a similar expression of C however the it is not used in the same context nor in the same formula. Additionally the bounds of the parameters are not set as claimed.

For claim 32, the closest prior art fails to disclose by anticipation or combination a method of managing communication, comprising the step of causing a central control station to schedule such that allowance to transmit data is given, as a transmission right, to only one of commu.nication stations in each time period by determining a timing of transmitting data from a

communication station that is to transmit the data, to a communication station that is to receive the data, the method comprising the step of:

causing the central control station to carry out the scheduling so that (i) a value smaller than a maximum tolerable delay time Tdelay (Delay bound) of the data to be transmitted by the communication station that is to transmit the data is used as a maximum value of an interval between two successive timings of granting the transmission right, and (ii) a sum of transmission right granted time periods actually granted in a time period {tl, t2} is a value equal to or more than a value of a time period necessary for transmitting MSDUs of a normal MSDU size arriving in a time period (tl, t2 - T bound) with a mean data rate of a traffic, where tl and t2 are arbitrary time points (tl t2), and Tbound satisfies the condition: 0<=Tbout< Tdelay.

The closest prior art, Pavon et al (US 2006/0052088) teaches the delay bound and a transmitting periods (TXOP), however it fails to disclose that sum of transmission right granted time periods actually granted in a time period {tl, t2} is a value equal to or more than a value of a time period necessary for transmitting MSDUs arriving in a time period (tl, t2- T bound).

2. Claims 29, 33-62 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action. Additionally, the objections set forth in the office action need to be addressed.

For claim 29, the prior art fails to discloses causing the central control station to carry out the scheduling, by using parameters C, TXOP bound, and T bound, so that a sum of transmission right granted time periods actually granted in a time period {tO, tO + t} is always equal to or more than C-t - TXOP bound where tO is an arbitrary time point, C is an average ratio of the sum of the transmission right granted time periods allocated, to the communication station that is to transmit the data, by the central control station according to a reference transmission right allocation, and T delay is a maximum tolerable delay time of the data to be transmitted by the communication station that is to transmit the data, C, TXOP bound, and T bound satisfying following formulas:

Formula 1: 0 <T bound< T delay

Formula 2: 0<C<1

Formula 3:

TXOP bound = C*Tbound.

The closest prior art, Pavon et al (US 2006/0052088) teaches a similar expression of C however the it is not used in the same context nor in the same formula. Additionally the bounds of the parameters are not set as claimed.

For claim 49, prior art fails to disclose causing said one communication station to derive n by a following formula using a packet error rate PER and a packet loss rate of a communication

path: n = ceiling {log(PLR)/log(PER)}

where n is a desirable maximum number of times transmission is able to be carried out; and

notifying the central control station that a time period equal to or less than a time period obtained by dividing, by n, a value of an tolerable transmission delay time T delay is "a maximum time interval between two successive times at which polling is desired".

The closest prior art, Allain et al (US 6,449259) discloses that QOS is dependent on PER and PLR however the exact expression is not tought. The closest prior art, Pavon et al (US 2006/0052088) disclose the delay bound, however the maximum interval between tow successive time at which polling is desired is not disclosed.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US-6,449,259 B1	09-2002	Allain et al.	370/253
US-2003/0063563 A1	04-2003	Kowalski, John M.	370/230
US-2003/0223365 A1	12-2003	Kowalski, John M.	370/230.1
US-2004/0073939 A1	04-2004	Ayyagari, Deepak	725/110
US-2006/0052088 A1	03-2006	Pavon et al.	455/414.1

The above are referenced to show system/methods of granting transmitting times in wireless communications.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenan Cehic whose telephone number is (571) 270-3120. The examiner can normally be reached on Monday through Friday 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KC

/Kwang B. Yao/

Supervisory Patent Examiner, Art Unit 2616